

the state of the art

- U. S. Patent 4,971,908, issued Nov. 20, 1990.
- U. S. Patent 4,987,071, issued Jan. 22, 1991.
- U. S. Patent 5,023,179, issued Jun. 11, 1991.
- U. S. Patent 5,024,837, issued Jun. 18, 1991.
- 5 U. S. Patent 5,126,133, issued Jun. 30, 1992.
- U. S. Patent 5,176,995, issued Oct. 15, 1991.
- U. S. Patent 5,322,687, issued Jun. 21, 1994.
- U. S. Patent 5,334,711, issued Aug. 2, 1994.
- U. S. Patent 5,380, 831, issued Jan. 10, 1995.
- 10 U. S. Patent 5,424,412, issued June 13, 1995.
- U. S. Patent 5,441,884, issued Aug. 15, 1995.
- U. S. Patent 5,463,175, issued Oct. 31, 1995.
- U. S. Patent 5,500,365, issued Mar 19, 1996.
- Intl. Pat. Appl. Publ. No. PCT/US87/00880.
- 15 Intl. Pat. Appl. Publ. No. PCT/US89/01025.
- Intl. Pat. Appl. Publ. No. WO 88/09812.
- Intl. Pat. Appl. Publ. No. WO 88/10315.
- Intl. Pat. Appl. Publ. No. WO 89/06700.
- Intl. Pat. Appl. Publ. No. WO 91/03162.
- 20 Intl. Pat. Appl. Publ. No. WO 92/07065.
- Intl. Pat. Appl. Publ. No. WO 92/110298.4.
- Intl. Pat. Appl. Publ. No. WO 93/07278.
- Intl. Pat. Appl. Publ. No. WO 93/15187.
- Intl. Pat. Appl. Publ. No. WO 93/23569.
- 25 Intl. Pat. Appl. Publ. No. WO 94/02595.
- Intl. Pat. Appl. Publ. No. WO 94/13688.
- Eur. Pat. Appl. Publ. No. EP 0120516.
- Eur. Pat. Appl. Publ. No. 295156A1.
- Eur. Pat. Appl. Publ. No. 320,308.
- 30 Eur. Pat. Appl. Publ. No. 329,822.

Great Britain Pat. Appl. No. 2202328.

Abdullah *et al.*, *Biotechnology*, 4:1087, 1986.

Adami and Nevins, *In: RNA Processing*, Cold Spring Harbor Laboratory, p. 26, 1988.

Adang, *et al.*, *In: Molecular Strategies for Crop Protection*, Alan R. Liss, Inc., pp. 345-

5 353, 1987.

Almond and Dean, *Biochemistry*, 32:1040-1046, 1993.

Angsuthanasamnat *et al.*, *FEMS Microbiol. Lett.*, 111:255-262, 1993.

Aronson, Wu, and Zhang, "Mutagenesis of specificity and toxicity regions of a *Bacillus thuringiensis* protoxin gene", *J. Bacteriol*, 177:4059-4065, 1995.

10 Bagdasarian *et al.*, *Gene*, 16:237, 1981.

Barton, *et al.*, *Plant Physiol.*, 85:1103-1109, 1987.

Baum *et al.*, *Appl. Environ. Microbiol.*, 56:3420-3428, 1990.

Baum, *J. Bacteriol.*, 177:4036-4042, 1995.

15 Benbrook *et al.*, *In: Proceedings Bio Expo 1986*, Butterworth, Stoneham, MA, pp. 27-54, 1986.

Bevan, M. *et al.*, *Nature*, 304:184, 1983.

Bolivar *et al.*, *Gene*, 2:95, 1977.

Brady and Wold, *In: RNA Processing*, Cold Spring Harbor Laboratory, p. 224, 1988.

Brown, *Nucl. Acids Res.*, 14(24):9549, 1986.

20 Brussock and Currier, "Use of sodium dodecyl sulfate-polyacrylamide gel electrophoresis to quantify *Bacillus thuringiensis*  $\delta$ -endotoxins." *In: Analytical Chemistry of Bacillus thuringiensis*, eds.. Hickie and Fitch, The American Chemical Society, pp. 78-87, 1990.

Bytebier *et al.*, *Proc. Natl. Acad. Sci. USA*, 84:5345, 1987.

25 Callis and Walbot, *Genes and Develop.*, 1:1183-1200, 1987.

Capecci, "High efficiency transformation by direct microinjection of DNA into cultured mammalian cells," *Cell*, 22(2):479-488, 1980.

Caramori, Albertini, Galizzi, *In vivo* generation of hybrids between two *Bacillus thuringiensis* insect-toxin-encoding genes, *Gene*, 98:37-44, 1991.

Cashmore *et al.*, In: *Gen. Eng. of Plants*, Plenum Press, New York, 29-38, 1983.

Chambers *et al.*, *Appl. Environ. Microbiol.*, 173:3966-3976, 1991.

Chau *et al.*, *Science*, 244:174-181, 1989.

Chen *et al.*, *Nucl. Acids Res.*, 20:4581-9, 1992.

- 5 Chen, Curtiss, Alcantara, Dean., "Mutations in domain I of *Bacillus thuringiensis*  $\delta$ -endotoxin CryIAb reduce the irreversible binding of toxin to *Manduca sexta* brush border membrane vesicles," *J. Biol. Chem.*, 270:6412-6419, 1995.

Chen, Lee, Dean, "Site-directed mutations in a highly conserved region of *Bacillus thuringiensis*  $\delta$ -endotoxin affect inhibition of short circuit current across *Bombyx mori* midguts," *Proc. Natl. Acad. Sci. USA*, 90:9041-9045, 1993.

10

Chowrira and Burke, *Nucl. Acids Res.*, 20:2835-2840, 1992

Clapp, "Somatic gene therapy into hematopoietic cells. Current status and future implications," *Clin. Perinatol.*, 20(1):155-168, 1993.

Conway and Wickens, In: *RNA Processing*, Cold Spring Harbor Laboratory, p. 40, 1988.

15

Cornellssen *et al.*, *EMBO J.*, 5(1):37-40, 1986.

Cristou *et al.*, *Plant Physiol.*, 87:671-674, 1988.

Curiel, Agarwal, Wagner, Cotten. "Adenovirus enhancement of transferrin-polylysine-mediated gene delivery," *Proc. Natl. Acad. Sci. USA*, 88(19):8850-8854, 1991.

Curiel, Wagner, Cotten, Birnstiel, Agarwal, Li, Loechel, Hu, "High-efficiency gene transfer mediated by adenovirus coupled to DNA-polylysine complexes," *Hum. Gen. Ther.*, 3(2):147-154, 1992.

20

Daar *et al.*, In: *RNA Processing*, Cold Spring Harbor Laboratory, p. 45. 1988.

de Maagd, Kwa, van der Klei, Yamamoto, Schipper, Vlak, Stiekema, Bosch, "Domain III substitution in *Bacillus thuringiensis* delta-endotoxin CryIA(b) results in superior toxicity for *Spodoptera exigua* and altered membrane protein recognition," *Appl. Environ. Microbiol.*, 62:1537-1543, 1996.

25

Dean *et al.*, *Nucl. Acids Res.*, 14(5):2229, 1986.

Dedrick *et al.*, *J. Biol. Chem.*, 262(19):9098-1106, 1987.

Dhir *et al.*, *Plant Cell Reports*, 10:97, 1991.